

Title (en)
Zoom lens and information device

Title (de)
Zoomobjektiv und Informationsvorrichtung

Title (fr)
Objectif à focale variable et dispositif d'information

Publication
EP 2273299 A1 20110112 (EN)

Application
EP 10251195 A 20100702

Priority

- JP 2009160297 A 20090706
- JP 2009160299 A 20090706
- JP 2009209864 A 20090910

Abstract (en)

A zoom lens includes a first lens group (G1) having a positive refractive power, a second lens group (G2) having a negative refractive power, a third lens group (G3) having a positive refractive power, and a fourth lens group (G4) having a positive refractive power, which are disposed in order from an object side, and an aperture stop (AD) disposed at an object side of the third lens group. When changing the magnification from a wide angle end to a telephoto end, an interval between the first and second lens groups increases, an interval between the second and third lens groups decreases, and an interval between the third and fourth lens groups increases. The first lens group includes a negative lens (E1), a positive lens (E2), and a positive lens (E3), in order from the object side. Predetermined conditions of a refractive index of the negative lens (E1) for a d line, an Abbe number for d line, and a relative partial dispersion are satisfied.

IPC 8 full level
G02B 15/173 (2006.01); **G02B 27/00** (2006.01)

CPC (source: EP US)
G02B 13/18 (2013.01 - EP US); **G02B 15/144113** (2019.07 - EP US)

Citation (applicant)

- JP 2008107559 A 20080508 - OLYMPUS IMAGING CORP
- JP 2008112013 A 20080515 - OLYMPUS IMAGING CORP
- JP 2005326743 A 20051124 - RICOH KK
- JP 2008076493 A 20080403 - OLYMPUS IMAGING CORP
- JP 2008225328 A 20080925 - OLYMPUS IMAGING CORP
- JP 2008026837 A 20080207 - RICOH KK
- JP 2004199000 A 20040715 - NIKON CORP
- JP 2008096924 A 20080424 - RICOH KK
- JP 2008146016 A 20080626 - OLYMPUS IMAGING CORP
- JP 2006189698 A 20060720 - CANON KK

Citation (search report)

- [Y] JP 2009098585 A 20090507 - RICOH KK
- [Y] WARREN J. SMITH: "Modern Lens Design", 1 January 1992, MC GRAW HILL, New York, pages: 72 - 75, XP002600293

Cited by
US2011002048A1; US8179610B2

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

Designated extension state (EPC)
BA ME RS

DOCDB simple family (publication)
EP 2273299 A1 20110112; **EP 2273299 B1 20170412**; CN 102004302 A 20110406; CN 102004302 B 20130102; US 2011002048 A1 20110106; US 8179610 B2 20120515

DOCDB simple family (application)
EP 10251195 A 20100702; CN 201010504213 A 20100706; US 82864810 A 20100701